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The Honorable Floyd D. Spence
Chairman
The Honorable Ronald V. Dellums
Ranking Minority Member
Committee on National Security
House of Representatives

The Honorable James V. Hansen
The Honorable Norman Sisisky
House of Representatives

In accordance with a September 26, 1994, request from the former Chairman and Ranking Minority Member, we examined the impact of the recent decline in defense expenditures on individual business units of major defense contractors. We compared defense expenditures over a number of years and changes in the business units' (1) sales and employment levels and (2) their spending on independent research and development and bid and proposal (IR&D/B&P)[1] preparation, capital improvements, and facilities. To provide comparability and perspective, all of the sales and spending levels in this report are expressed in fiscal year 1995 dollars and measured from various base years.

We selected business units from 6 of the top 10 defense contractors in 1993—General Dynamics, General Motors, Lockheed, Martin Marietta, McDonnell Douglas, and United Technologies. The units selected were primarily engaged in defense work and comprised an important part of their corporations' total government sales.[2] To protect proprietary data, we have not disclosed the identities of the business units and have frequently interchanged the business unit labels (A-F) used throughout this report. While the changes at these business units are not projectable to the entire defense industry, they provide some insight into the impact of defense downsizing.

[1]IR&D is research and development initiated and conducted by contractors but is not specified under any contract or grant. It is funded and managed at the contractor's discretion from contractor controlled resources, with a portion of the costs later recovered through overhead. B&P is the cost incurred in preparing, submitting, and supporting bids and proposals (solicited and unsolicited) on potential government or nongovernment contracts.

[2]Includes sales made to foreign governments through the U.S. government.

Background

The Congress wants a strong defense industrial base and has directed the Secretary of Defense to report annually on the ability of industry to support U.S. national security objectives. The Congress directed the Secretary to consider in the analysis for that report such factors as levels of spending for capital investment and research and development. In June 1993, the Department of Defense's (DOD) Inspector General criticized DOD's first report as being of limited use in helping congressional leaders make informed judgments because DOD lacked an adequate information system to carry out the assessment.

Defense industry representatives also criticized that report. One common criticism was that the majority of the report's data applied to corporations rather than their defense segments. The second DOD report, released in September 1994, also concentrated on the corporate level rather than individual business units. Other studies of the effects of the spending decline have also assessed the impact at the corporate level rather than the individual business unit. Another shortcoming in many of these assessments was that they measured the severity of the decline in defense expenditures only from the peak years of the 1980s and not from other years in the cycle of defense expenditures as well.

Results in Brief

Measured from their peak years, the six business units we visited had experienced sales decreases ranging from 21 percent to 54 percent through 1993 and estimated declines ranging from 50 percent to 73 percent through the latest year projected. The resulting employment reductions ranged from 30 percent to 76 percent through 1993 and planned reductions ranging from 44 percent to 79 percent through the latest year projected.

From their peak year spending levels through 1993, the six units had reduced IR&D/B&P spending ranging from 31 percent to 71 percent and projected reductions ranging from 41 percent to 84 percent through the latest year projected. The six units had also reduced expenditures for capital improvements by an average of 80 percent through 1993 and, through the latest year projected, estimated an average reduction of 76 percent in these expenditures.

Although these business units have significantly reduced spending in these areas, projections by some of the units are still higher than their (1) 1976 levels—the lowest peacetime defense spending level since the Korean War buildup—and (2) 1980 levels—the year before the Reagan administration military buildup.

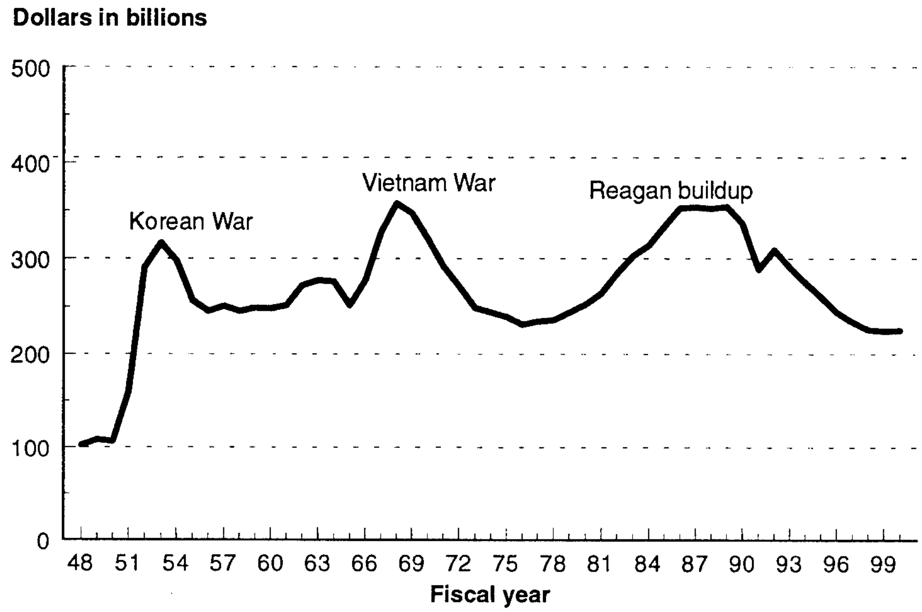
The defense industry has adjusted to previous spending reductions. The current post-Cold War reduction is only 2 percentage points greater than the reduction after the Vietnam War and is taking place over a period that is 2 years longer. However, unlike other drawdowns, defense contractors view the current decline as permanent and have developed a variety of strategies to deal with reduced defense spending.

Defense Expenditures

Since the World War II drawdown, defense spending has experienced three peaks associated with the Korean War, the Vietnam War, and the Reagan administration military buildup. In fiscal year 1989, defense expenditures[3] reached their highest peacetime level since World War II, exceeding defense spending at the peak of the Korean War and almost matching spending during the Vietnam War. Defense expenditures in fiscal year 1989 were $354.1 billion, but had declined to $274.5 billion by fiscal year 1994, a reduction of $79.6 billion or 22 percent. The Clinton administration is projecting defense expenditures of $224.5 billion in fiscal year 2000, which represents a $129.6-billion, or a 37-percent, decline in defense spending since fiscal year 1989. Figure 1 shows the trend in defense expenditures after the end of World War II.

[3]Many of the studies that assessed the impact of defense downsizing used budget authority to measure the impact. However, we used budget expenditures because expenditures provide a more accurate assessment of the impact.

Figure 1: Defense Expenditures



Note: Figures for fiscal years 1995 through 2000 are executive branch projections.

Although most defense authorities agree that the post-Cold War decline in spending is significant, it is comparable to the Vietnam War drawdown. As shown in table 1, the current decline is only 2 percentage points greater than the Vietnam War drawdown, which was spread over an 8-year period, whereas the post-Cold War drawdown is currently projected over a 10-year period. However, unlike the Vietnam War drawdown, defense contractors view the current decline as permanent, not cyclical.

Table 1: Cyclical Declines in Defense Expenditures (1995 Dollars in Billions)

Time period	Expenditures
Vietnam War drawdown	
1968	$358.0
1976	$231.0
Overall reduction	35 percent
Time span	8 years
Post-Cold War drawdown	
1989	$354.1
1999	$223.8
Overall reduction	37 percent
Time span	10 years

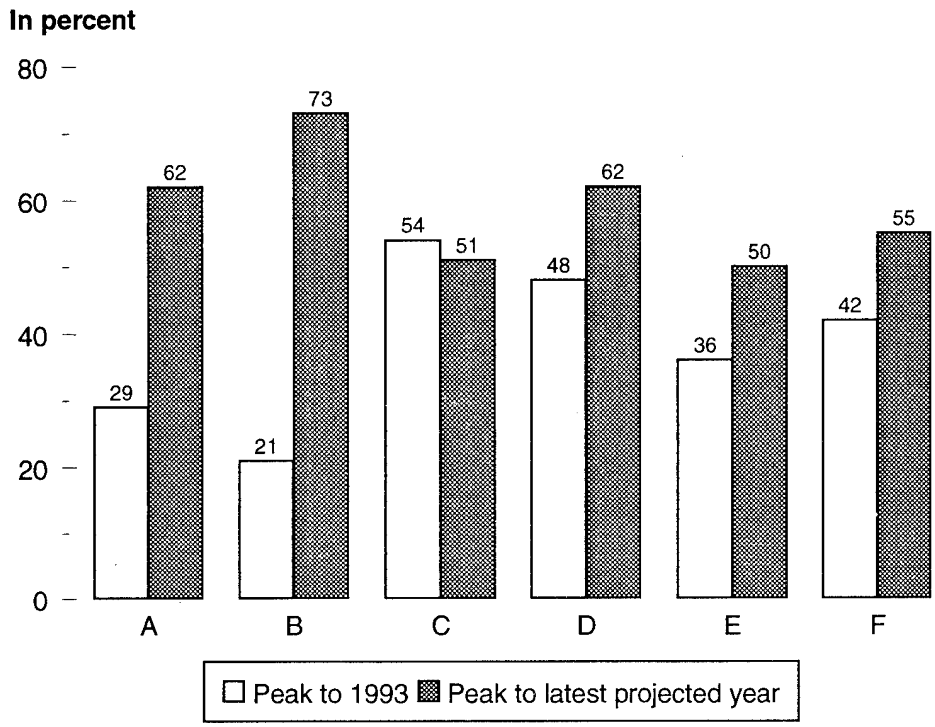
Measured against other years, the $260.2 billion in defense spending projected for fiscal year 1995 is about 13 percent greater than the $231 billion expended during fiscal year 1976 and about 4 percent greater than the $251.4 billion expended in fiscal year 1980. Fiscal year 1976 is a significant benchmark because it represents the lowest level in peacetime defense spending since the Korean War. Fiscal year 1980 is significant because it was the year prior to the beginning of the Reagan administration defense buildup. Based on current projections, peacetime defense spending will remain above the fiscal year 1976 level until fiscal year 1998, when spending is projected to decline to $225.1 billion.

Decline in Selected Business Unit Sales

According to officials of the six business units we visited, the decline in defense spending since the late 1980s has significantly affected their defense sales. We compared the peak sales by these business units during the mid-to-late 1980s with their sales in 1993 and the latest year projected.[4] Measured from their peak sales years, we found that the business units' sales decreases ranged from 21 percent to 54 percent through 1993 and that the units were estimating decreases ranging from 50 percent to 73 percent through the latest year projected. The projected weighted average decline over the businesses was about 55 percent. Figure 2 shows the actual and projected sales decreases by business unit.

[4]Projected sales are presented for the latest year forecasted by the business units at the time of our visits. The latest years forecasted varied from 1997 to 2001, and peak years varied from 1985 to 1989.

Figure 2: Actual and Projected Reduction in Sales



Although sales declines from the peak years are significant, several of the business units had sales that were actually lower in 1976 and 1980 than their future projections. Table 2 compares the business units' forecasted sales with their 1976 and 1980 sales. As shown, two of the business units projected their future sales to be higher than their 1976 sales, and three of the business units projected their future sales to be higher than their 1980 sales.

Table 2: Comparison of Forecasted Sales With 1976 and 1980 Sales

Business unit	Change in sales: 1976 through last year forecasted	Change in sales: 1980 through last year forecasted
A	74-percent increase	13-percent increase
B	33-percent increase	17-percent increase
C	54-percent decrease	16-percent decrease
D	Not available	62-percent decrease
E	Not available	29-percent increase
F	Not available	Not available

Contractors Reduce Spending in Response to Sales Declines

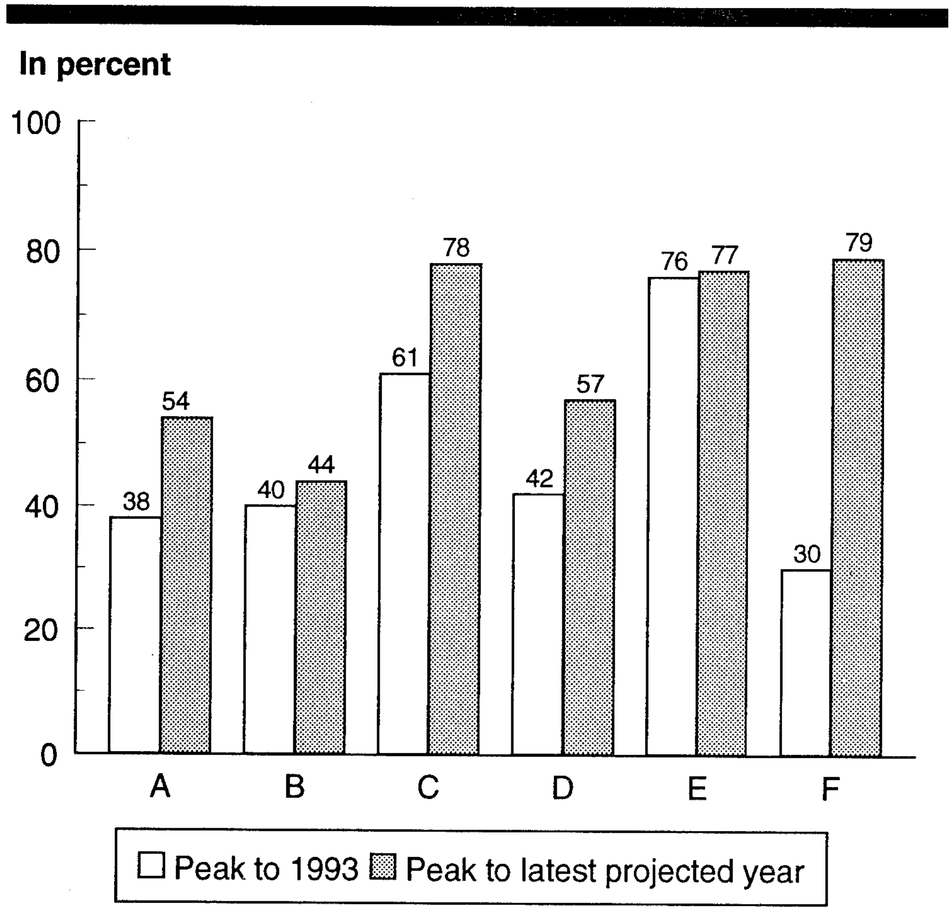
Defense contractors have taken and are continuing to take aggressive actions to reduce spending as a result of post-Cold War sales declines. The following discussion deals with actions taken in the areas of employment levels, IR&D/B&P expenditures, capital improvements, and facilities.

Cutbacks in Employees

The six business units have made large reductions in the number of employees since their peak employment years[5] of the mid-to-late 1980s. Through 1993, the units' workforce reductions ranged from 30 percent to 76 percent. Through the latest projected year, the units' estimated reductions ranged between 44 percent to 79 percent. Three of the units projected reductions of over 75 percent, while the other three units projected reductions ranging from 44 percent to 57 percent. Figure 3 provides an overview of actual and projected employment reductions by business unit.

[5]Peak employment years varied from 1983 to 1989, and the latest projected years varied from 1996 to 2001.

Figure 3: Actual and Projected Reductions in Total Employment



Unlike sales where several of the business units projected higher figures in the future than in 1976 and 1980, all of the units for which data were available projected lower employment levels in the future than they had in 1976 and 1980. Table 3 compares projected employment with the 1976 and 1980 levels.

Table 3: Comparison of Forecasted Employment With 1976 and 1980 Employment

Business unit	Change in employment: 1976 through last year forecasted	Change in employment: 1980 through last year forecasted
A	17-percent decrease	43-percent decrease
B	11-percent decrease	35-percent decrease
C	5-percent decrease	37-percent decrease
D	Not available	77-percent decrease
E	Not available	68-percent decrease
F	Not available	Not available

The downward employment trend at these six business units is consistent with the findings of other studies on the private sector defense industry workforce. One report,[6] for example, showed that defense-related private employment had declined from about 3.7 million workers in 1987 to about 2.7 million workers in 1993, which represents a 26-percent employment decline over the period. According to that report, the 20 leading defense contractors had experienced an average employment reduction of 22 percent between 1987 and 1993. Other studies have projected a continuing downward trend in defense employment over the next several years. For example, a report[7] prepared by the Logistics Management Institute for the Defense Conversion Commission estimated that private sector defense-related employment would likely decline by about 803,000 jobs, or 27 percent, from 1992 to 1997.

Declines in IR&D/B&P Expenditures

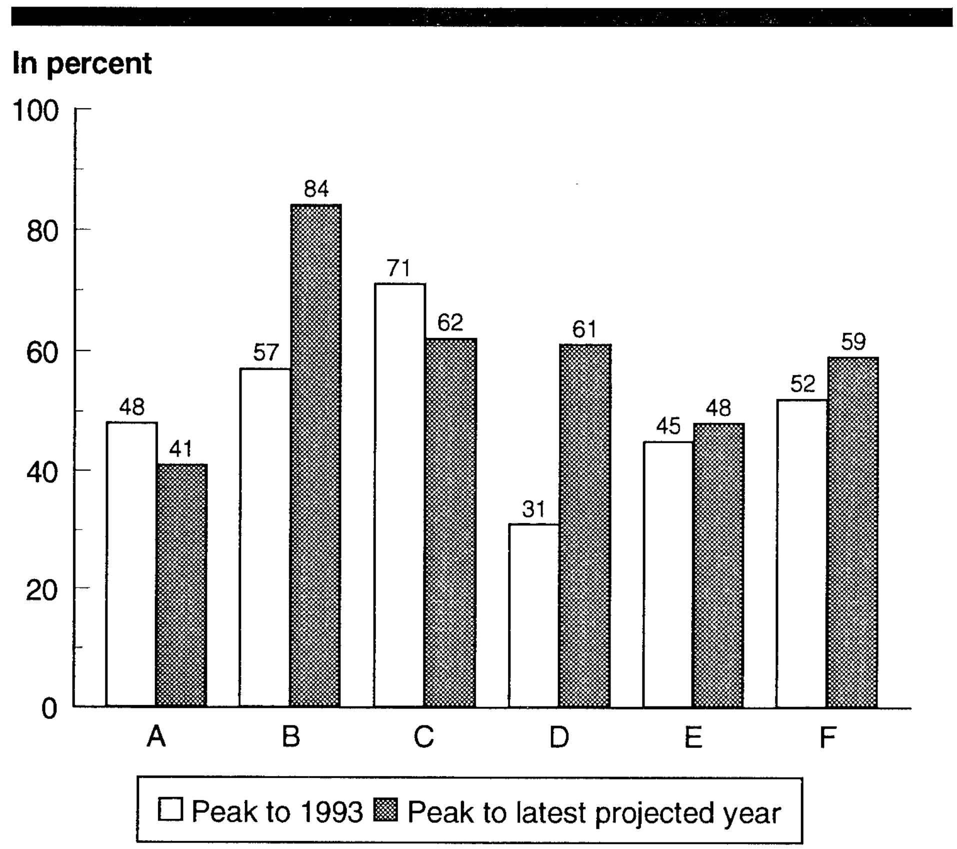
Similar to the reductions in employment levels, the six business units had made substantial cuts in their IR&D/B&P expenditures. Between their peak spending years[8] and 1993, these units had reduced IR&D/B&P expenditures ranging from 31 percent to 71 percent and projected reductions ranging from 41 percent to 84 percent through the latest year projected. Figure 4 shows the actual and projected reductions.

[6] Backgrounder—The U.S. Defense Industry in 1993: A Year-End Review, Defense Budget Project (Jan. 17, 1994).

[7] The DOD Drawdown: Planned Spending and Employment Cuts, Logistics Management Institute (Jan. 1993).

[8] Peak IR&D/B&P expenditure years varied from 1984 to 1988, and the latest projected years varied from 1997 to 2001.

Figure 4: Actual and Projected Reduction in IR&D/B&P Expenditures



The six business units' forecasts show that they plan to spend an average of 54 percent less for IR&D/B&P than they spent during the mid-to-late 1980s. However, as shown in table 4, two of the business units projected future expenditures for IR&D/B&P to be more than they spent in 1976. Two other business units forecasted their future expenditures to be more than they spent in 1980.

Table 4: Comparison of Forecasted IR&D/B&P Expenditures With Expenditures in 1976 and 1980

	Change in IR&D/B&P expenditures	
Business unit	**1976 through last year forecasted**	**1980 through last year forecasted**
A	9-percent increase	52-percent decrease
B	4-percent decrease	15-percent decrease
C	28-percent increase	43-percent decrease
D	Not available	45-percent increase
E	Not available	7-percent increase
F	Not available	Not available

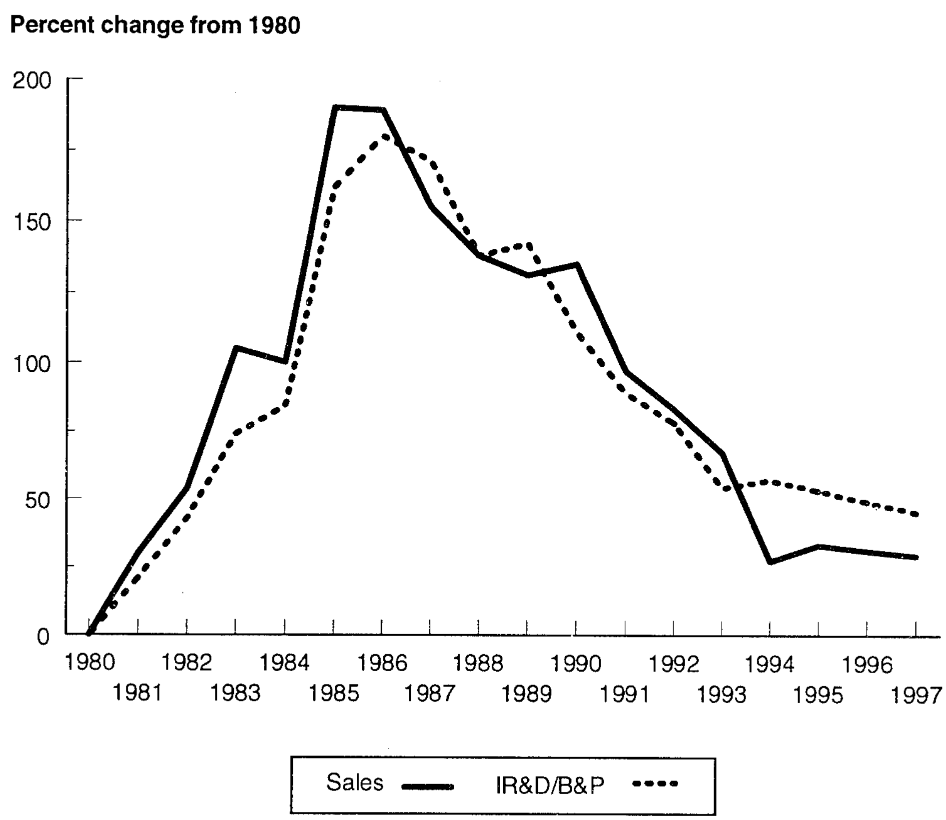
Several studies showed a correlation between the level of defense expenditures and the amounts contractors spend on IR&D. One study,[9] for example, stated that the level of defense procurement directly affects IR&D activities, which are supported to a large extent by overhead charges in production contracts. The report stated that when large production runs were the rule, many companies willingly invested their own funds in IR&D because they could reasonably expect to recover their investment. Another report[10] predicted that, with fewer defense procurements, IR&D payments would decrease and companies might not be willing to risk conducting their own IR&D.

To determine whether these reports applied to the business units we visited, we compared the changes in the business units' spending levels for IR&D/B&P with changes in their sales. For four of the six business units, we found that changes in IR&D/B&P expenditures generally correlated to their sales volume. For illustration purposes, figure 5 compares the trend in one business unit's sales and its IR&D/B&P expenditures.

[9]"The Future of the Defense-Related Industrial Base in the United States", Parameters, Journal of the U.S. Army War College (Summer 1994).

[10]Defense R&D in the 1990s, Congressional Research Service Issue Brief (Feb. 24, 1994).

Figure 5: Percent Change in Sales and IR&D/B&P Expenditures



Note: Figures for years 1994 through 1997 are estimates.

Because of concerns that the quantity and quality of IR&D would decline as budget cuts forced the defense industry to limit overhead costs, the Congress made substantial legislative revisions[11] to the IR&D program in fiscal years 1991 and 1992 to encourage defense contractors to continue IR&D activities. Even with these revisions, defense contractors have continued to cut their IR&D/B&P expenditures, as their defense sales have declined.

[11]In this legislation, the Congress (1) broadened the criteria for allowable IR&D efforts to include any work of "potential interest" to DOD; (2) removed all negotiated ceilings on allowable costs, mandating an automatic 5-percent increase in pre-existing ceilings through the end of fiscal year 1995 with full reimbursement of DOD's share of incurred IR&D costs beginning in fiscal year 1996; and (3) eliminated mandatory on-site technical reviews of industry projects and abolished the formal mechanisms by which DOD could appraise and score industry's IR&D efforts.

Reductions in Capital Expenditures

The six business units we visited have significantly cut their capital expenditures from their peak spending levels in the 1980s.[12] The units had made reductions through 1993 ranging from 52 percent to 92 percent and estimated reductions ranging from 55 percent to 85 percent through the latest projected year. The units projected a weighted average reduction of 76 percent in their capital expenditures. Figure 6 shows the actual and projected reductions in capital expenditures.

Figure 6: Actual and Projected Reduction in Capital Expenditures

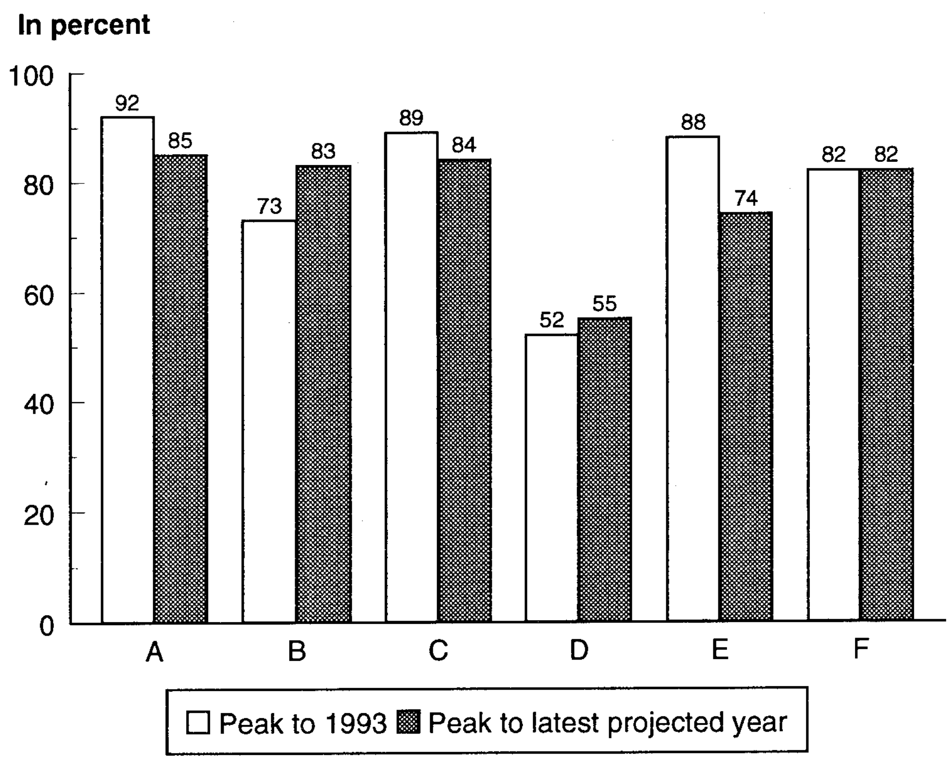


Table 5 compares the business units forecasted expenditures with their 1976 and 1980 expenditures. When 1976 was used as the base year, three business units projected higher capital expenditures in the future, but when 1980 was used as a base year, one business unit projected higher

[12]Peak capital expenditure years varied from 1980 to 1988, and the latest projected years varied from 1997 to 2001.

capital expenditures. Similar to IR&D/B&P expenditures, there is not a consistent trend in capital expenditures. For example, although Company A and Company C projected higher capital expenditures compared to 1976, the companies projected lower capital expenditures when compared to 1980. However, we found that changes in capital expenditures at three of the units correlated to the units' sales volume.

Table 5: Comparison of Forecasted Capital Expenditures With 1976 and 1980 Capital Expenditures

	Change in capital expenditures	
Business unit	**1976 through last year forecasted**	**1980 through last year forecasted**
A	89-percent increase	53-percent decrease
B	493-percent increase	8-percent increase
C	75-percent increase	50-percent decrease
D	Not available	85-percent decrease
E	Not available	78-percent decrease
F	Not available	Not available

Two business units had formal programs to limit future capital expenditures. One unit, for example, established the following four categories in which proposed capital expenditures would be approved by management:

- firm contractual commitments required to keep existing products operational,
- environmental requirements mandated by law,
- health and safety requirements to meet Occupational Safety and Health Administration standards, and
- new product requirements for specific new products.

According to a report issued in May 1989 by the Center for Strategic and International Studies, the best measure of the U.S. defense industrial base's ability to maintain its technological lead is the amount of capital spending in industry to expand capacity or improve productivity.

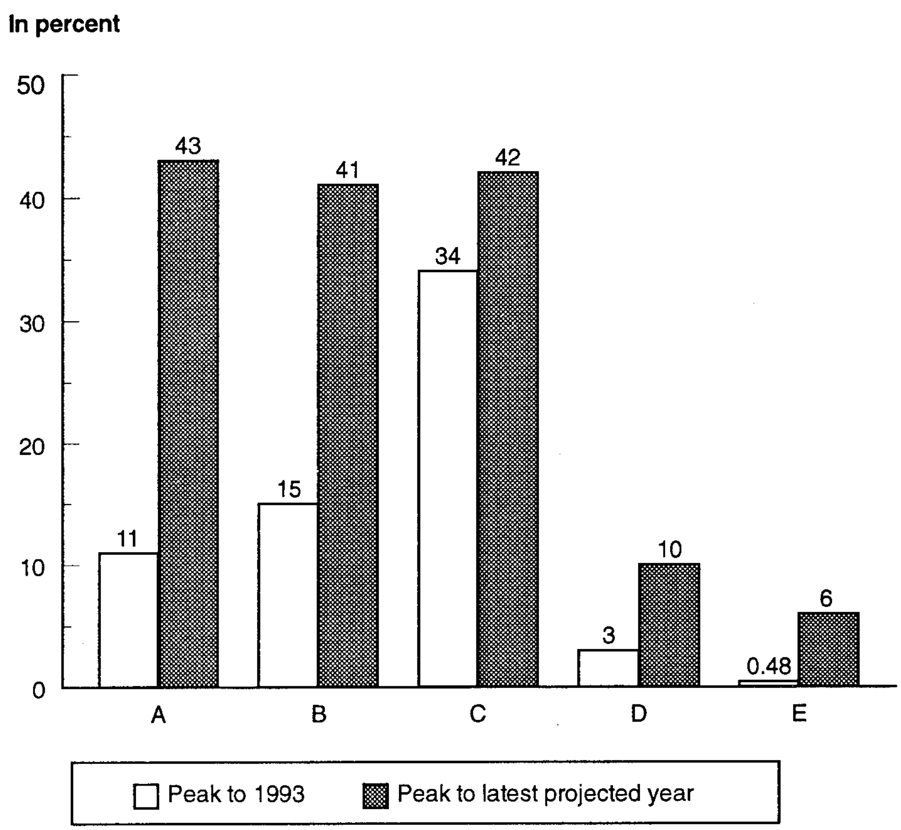
Reductions in Facilities

Measured from their peak years,[13] five of the business units had reduced their total square footage by as much as 34 percent through 1993, and five units projected reductions ranging from 6 percent to 43 percent, or an average of 26 percent, through the latest projected year. The units

[13]Peak square footage years varied from 1985 to 1991, and the latest projected years varied from 1997 to 2001.

projected most of these reductions in their leased space. Figure 7 shows the actual and projected reductions in total square footage.

Figure 7: Actual and Projected Reductions in Facilities



Despite the past and planned reductions in space occupied, most of the units projected larger square foot usage than in 1976 and 1980. Table 6 compares the changes in the size of the business units' facilities.

Table 6: Comparison of Forecasted Total Square Footage With 1976 and 1980 Square Footage

	Change in total square footage	
Business unit	1976 through last year forecasted	1980 through last year forecasted
A	65-percent increase	29-percent increase
B	62-percent increase	31-percent increase
C	15-percent increase	14-percent increase
D	Not available	34-percent decrease
E	Not available	11-percent increase
F	Not available	Not available

Three business units expected to use more square footage in the future[14] than occupied in 1976; four units expected to use more space than they occupied in 1980. According to Defense Contract Management Command records, defense contractors have significantly reduced the size of their facilities through such actions as vacating and selling buildings and terminating leases.

Scope and Methodology

We compiled and compared information on the declines and buildups in defense expenditures since the end of World War II. We also conducted literature searches and examined various reports, assessments, and other documents to determine how defense contractors throughout the industry have been affected by reduced defense spending.

The business units provided us with data on their sales, employment levels, capital expenditures, IR&D/B&P, and facilities for 1976 through the latest projected year. We focused our work on these five elements because we believed they were most representative of the impact of reduced defense spending on defense contractor business units.

For three of the business units, we were unable to obtain data as early as 1976 and therefore used the earliest data available. We accepted the data provided by the business units and did not attempt to validate the data. In some cases, the organization of the business units have changed since 1976, and the units had to compile or estimate data to reflect their organization since that time.

We conducted our review from March 1994 to January 1995 in accordance with generally accepted government auditing standards. We did not obtain

[14]The latest projected years varied from 1997 to 2001.

DOD comments on this report; however, we discussed the results of our work with contractor representatives from each of the six business units.

We are sending copies of this report to the Secretary of Defense, officials of the six business units, and other interested congressional committees. We will make copies available to others upon request.

Please contact me at (202) 512-4587 if you or your staff have any questions concerning this report. The major contributors to this report were John K. Harper, George C. Burdette, Anne-Marie Olson, and Amy S. Parrish.

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